Notice of Allowability	Application No.	Applicant(s)	
	10/782,411	OSHIMA ET AL.	
	Examiner	Art Unit	
	Dac V. Ha	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *amendment filed on 06/27/06*.

2. ☒ The allowed claim(s) is/are *19-30, renumbered as 13-24, respectively*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In the specification, replace the first paragraph with –

This is a divisional application of application 09/686,465, now abandoned, which is a divisional application of reissue application No. 09/244,037, filed February 4, 1999, which is also a reissue application of U.S. Patent No. 5,600,672, issued February 4, 1997 which is a Continuation-In-Part of application Serial Number 07/857,627, filed March 25, 1992 now abandoned. Further reissue divisional applications have been filed, all of which are reissues of Patent No. 5,600,672. These further applications are: 09/677,421, filed October 5, 2000; 09/678,014, filed October 5, 2000; 09/677,420, filed October 5, 2000; 09/680,177, filed October 5, 2000; 09/680,176, filed October 5, 2000; 09/686,467, filed October 12, 2000; 09/686,463, filed October 12, 2000; 09/686,466, filed October 12, 2000; 09/688,028, filed October 12, 2000; 09/686,464, filed October 12, 2000; 09/686,465, filed October 12, 2000; 09/666,012, filed September 19, 2000; 09/667,525, filed September 21, 2000; 09/667,438, filed September 21, 2000; 09/668,068, filed September 25, 2000; 09/669,916, filed September 25, 2000; 09/672,948, filed September 29, 2000; 09/672,946, filed September 29, 2000; 09/672,947, filed September 29, 2000; 10/133,347, filed April 29, 2002; 10/133,364, filed April 29, 2002; 10/692,469, filed October 24, 2003; 10/693,526, filed October 27, 2003; 10/635,468, filed August 7, 2003; 10/690,297, filed October 27, 2003; 10/860,666, filed June 4, 2004; 10/782,411, filed February 20, 2004; 10/783,588, filed February 23, 2004; 10/773,811, filed February 9, 2004; 10/882,126, filed June 30, 2004; 10/885,572, filed July 7, 2004; 10/911,680, filed August 5, 2004; and 11/038,006, filed January 19, 2006. –

2. The following is an examiner's statement of reasons for allowance:

References 2005/0084750, 2005/0058633 and 2005/0922922 filed on 12/19/05 are not considered and crossed out in PTO Form-1449 since they are deemed to be not

related to the present application (authorization is given by Mr. Jeffrey R. Fillipek (Reg. No. 41,471) on 03/21/07).

Upon further consideration and comparison with prior art of record, and additional IDS filed on 07/10/07, the examiner agrees with the applicant's argument in the REMARKS filed on 06/27/06. Thus, claims 19-30 are found to be novel and unobvious over prior art of record.

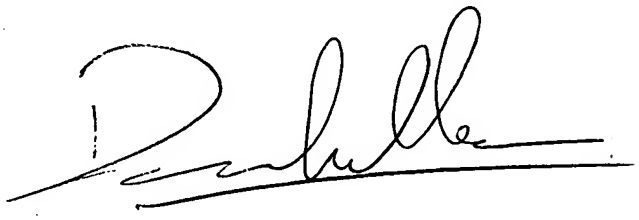
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-272-3040. The examiner can normally be reached on 4/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dac V. Ha
Primary Examiner
Art Unit 2611

A combination of the TDM with the SRQAM of the present invention has been described in the above. However, the SRQAM of the present invention can be combined also with any of the FDM, CDMA and frequency dispersal communications systems.

What is claimed is:

1. A signal transmission and reception apparatus for transmitting and receiving an n-level VSB signal, the apparatus comprising a transmitter and a receiver;

said transmitter comprising:

a compression means for compressing an input video signal to a digital video compression signal;

an error correction encoding means for adding an error correction code to the digital video compression signal to produce an error correction coded signal;

a modulation means for modulating the error correction coded signal to an n-level VSB modulation signal, said modulation means comprising a means for allocating code points along a uniaxial modulation coordinate system, and a filter means having a plurality of coefficients which are a series of impulse responses defined by plotting timebase responses to the VSB modulation signal along the in-phase axis and its orthogonal axis for filtering a series of said code points allocated along the uniaxial modulation coordinate system; and

a transmission means for transmitting the modulation signal, and

said receiver comprising:

a means for receiving a transmitted n-level VSB modulation signal;

a demodulation means for demodulating the received n-level VSB modulation signal into a digital reception signal;

an error correction means for error correcting the digital reception signal to obtain an error-corrected digital signal; and

an expanding means for expanding the error-corrected digital signal to obtain a video output signal.

2. A transmission and reception apparatus according to claim 1, wherein the error correction means comprises a trellis decoder.

3. A transmission and reception apparatus according to claim 2, wherein the trellis decoder is associated with a plurality of memories which each holds a number of selectable correct codes.

4. A transmission and reception apparatus according to claim 1, wherein the digital reception signal is divided into a high priority signal and a low priority signal, and wherein said error correction means comprises a high code gain first error correction means and a low code gain second error correction means, said first error correction means correcting the high priority signal.

5. A transmission and reception apparatus according to claim 4, wherein the high priority signal carries the address data for all data.

6. A transmission and reception apparatus according to claim 4, wherein the first error correction means comprises a trellis decoder.

7. A signal transmission and reception apparatus according to claim 1, further comprising a band path filtering means for filtering the n-level VSB modulation signal before being transmitted.

8. A signal transmission and reception apparatus for transmitting an n-level VSB signal, comprising:

a compression means for compressing an input video signal into a digital video compression signal;

an error correction encoding means for adding an error correction code to the digital video compression signal to produce an error correction coded signal;

a modulation means for modulating the error correction coded signal to an n-level VSB modulation signal, said modulation means comprising a means for allocating code points along a uniaxial modulation coordinate system, and a filter means having a plurality of coefficients which are a series of impulse responses defined by plotting timebase responses to the VSB modulation signal along the in-phase axis and its orthogonal axis for filtering a series of said code points allocated along the uniaxial modulation coordinate system; and

a transmission means for transmitting the modulation signal.

9. A signal transmission apparatus according to claim 8, further comprising a band path filtering means for filtering the n-level VSB modulation signal before being transmitted.

10. A signal receiving apparatus comprising:

a tuner for receiving a transmission signal containing a digital modulation signal and an analog modulation signal and for selecting the digital modulation signal using a local oscillation signal;

an interference detecting means for detecting interference caused by the analog modulation signal from the digital modulation signal selected by the tuner;

a notch filter means responsive to the interference detected by the interference detecting means for removing a carrier of the analog modulation signal in a same frequency band as a frequency band of the digital modulation signal;

an error ratio calculating means for calculating a bit error ratio of an output of the notch filter means; and

an automatic frequency correcting means for changing a frequency of the local oscillation signal of the tuner according to a level of the interference detected by the interference detecting means and the bit error ratio calculated by the error ratio calculating means to compensate for a frequency offset of the carrier of the analog modulated signal.

11. A signal receiving apparatus according to claim 10, wherein the digital modulation signal is an n-level VSB modulation signal.

12. A signal receiving apparatus comprising:

a tuner for receiving a transmission signal containing at least one of a VSB modulated signal and a QAM modulated signal and for selecting one of the VSB modulated signal and the QAM modulated signal to obtain a selected signal;

an analog-to-digital converter for converting the selected signal into a series of digital codes;

a transversal filter provided on an orthogonal axis for suppressing a transmission distortion of the series of digital codes with respect to both orthogonal axes to obtain a series of filtered digital codes allocated on the orthogonal axes;

a carrier recovery means for phase-compensating a carrier of the filtered digital codes allocated on the orthogonal axis outputted from the transversal filter; and

a control means for producing a control signal to extract detected codes at equal time intervals from the VSB modulated signal;

a clock reproducing means for phase synchronizing entire codes of the QAM modulated signal when the selected signal is the QAM modulated signal and for phase synchronizing codes of the VSB modulated signal intermittently at predetermined intervals when the selected signal is the VSB modulated signal; and

a decoding means for decoding an output of the carrier recovery means.

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